

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. **(currently amended):** A process for producing biodiesel fuel using triglyceride-rich oleaginous seed directly in a transesterification reaction in the presence of an alkaline alkoxide catalyst, wherein the process comprises the following steps:

- a) sieving and drying triglyceride-rich oleaginous seed;
- b) directly adding the oleaginous seed of step a) to a reactor;
- c) providing an anhydrous alkyl alcohol and adding the anhydrous alkyl alcohol to the oleaginous seed in the reactor of step b), wherein the amount of oleaginous seed to anhydrous alkyl alcohol is from 4:1 to 0.5:1, based on the amount of oil contained in the seed of step b);
- d) comminuting in the reactor the oleaginous seed and anhydrous alkyl alcohol of step c) at ambient temperature, so as to obtain a homogenous suspension;
- e) adding an alkaline alkoxide catalyst to the homogenous suspension obtained in step d), wherein the amount of catalyst added is from 0.1 to 5 wt% based on the weight of oleaginous seed, and allowing the transesterification reaction to occur for 30 to 90 minutes at temperatures between 30 and 78°C, so as to obtain a reaction mass comprising alkyl ester products at a 98-100% conversion rate;

- f) filtering the reaction mass obtained in step e), so as to obtain a liquid phase and a solid phase, wherein the liquid phase comprises the alkyl ester products obtained in step e);
- g) ~~distilling~~ distilling the liquid phase obtained in step f), so as to recover an excess amount of alcohol to be recycled in step c) and a remaining phase;
- h) decanting the remaining phase obtained in step g), so as to obtain glycerin and an alkyl esters phase, wherein the alkyl esters phase comprises the alkyl ester products obtained in step e); and
- i) neutralizing the alkyl esters phase obtained in step h) so as to obtain neutralized alkyl esters recovered as biodiesel fuel;

wherein the triglyceride-rich oleaginous seed is not subjected to an oil-extraction step prior to the transesterification reaction of step (e).

2. **(previously presented):** A process according to claim 1, wherein the triglyceride-rich oleaginous seed is sunflower, colza, soybean or peanut seed.

3. **(previously presented):** A process according to claim 1, wherein the triglyceride-rich oleaginous seed is castor bean seed.

4. **(previously presented):** A process according to claim 1, wherein the seed to alcohol ratio in step c) is 1.5:1 to 0.5:1.

5. **(previously presented):** A process according to claim 1 wherein the catalyst added in step e) is sodium or potassium ethanoate in an amount of 1.5wt% based on the weight of seed.

6. **(previously presented):** A process according to claim 1, wherein the transesterification reaction of step e) is carried out at 45-55°C for 40-60 minutes.

7-8. (canceled).

9. (previously presented): A process according to claim 1, further comprising the following steps j)-m);

- j) drying the solid phase obtained in step f) so as to recover the remaining alcohol for recycling to step c) and a dried solid phase;
- k) sieving the dried solid phase obtained in step j) so as to obtain a course fraction and a fine fraction, wherein the fine fraction is rich in carbohydrates and has a grain size of up to 20 mesh Tyler;
- l) subjecting the fine fraction obtained in step k) to a fermentation process, so as to obtain alcohol; and
- m) milling the coarse fraction obtained in step k) to a grain size of up to 20 mesh Tyler for use in fertilizers suitable for culturing the triglyceride-rich oleaginous seed used in step a).

10. (previously presented): A process according to claim 9, wherein the amount of alcohol obtained by the fermentation process of step l) is at least the amount required for performing the transesterification reaction of step e).

11-12. (canceled).

13. (previously presented): A process according to claim 1, wherein the neutralized alkyl esters obtained as biodiesel fuel in step i) are formulated into diesel and gasoline fuels.

14. (previously presented): A process according to claim 1, further comprising the following steps j) and k):

j) drying the solid phase obtained in step f) so as to recover the remaining alcohol and a solid fraction suitable for use as cattle feed; and

k) recycling the alcohol obtained in step j) to step c).

15. **(previously presented):** A process according to claim 1, wherein the anhydrous alcohol added in step c) is ethyl alcohol.

16. **(previously presented):** A process according to claim 13, wherein the neutralized alkyl esters obtained as biodiesel fuel in step i) are formulated into diesel and gasoline fuels by admixture with anhydrous or hydrated ethyl alcohol.